Innovating for Better Environmental Results

Imagine a future where companies achieve environmental results that exceed government requirements, where the same market forces that drive the economy create incentives for better environmental results, and where governments, businesses and communities work together to solve environmental issues in new ways. EPA envisions an environmental protection system that enables these and other benefits, and is harnessing the power of innovation to achieve it.

Innovation has and will continue to play a key role in strengthening environmental protection in the United States. Recognizing its necessity, in 2002, EPA released *Innovating for Better Environmental Results: A Strategy to Guide the Next Generation of Innovation at EPA*. This strategy focuses EPA on solving priority environmental problems and developing new tools to enhance environmental problem-solving. The strategy also calls for EPA to strengthen its innovation partnership with states and tribes and to foster innovation in our own culture and organizational systems.

The information below highlights progress in each area. Spanning the breadth of EPA's work, it provides important insights into how the agency is adapting to better meet the increasingly complex demands of today's world.

To learn more about innovative approaches at EPA, please visit http://www.epa.gov/innovation.

Focusing on Priority Problems

With broad-ranging responsibilities, and a workforce that is particularly passionate about it mission, EPA has a long history of environmental innovation. EPA is now building on those experiences to address some of today's most challenging problems.

With more than 40 percent of State-assessed waters not meeting water quality standards, and with the number of citizen-based watershed protection initiatives growing, EPA established a grant program in 2003 to enhance priority watersheds. Twenty organizations received a total of $15 million to pursue watershed protection projects that can serve as models for the rest of the country. To encourage an efficient and cost-effective approach for achieving clean water goals, EPA also issued a national policy in support of water quality trading. An EPA analysis showed the total potential savings from all types of water quality trading ranges from $658 million to $7.5 billion annually.

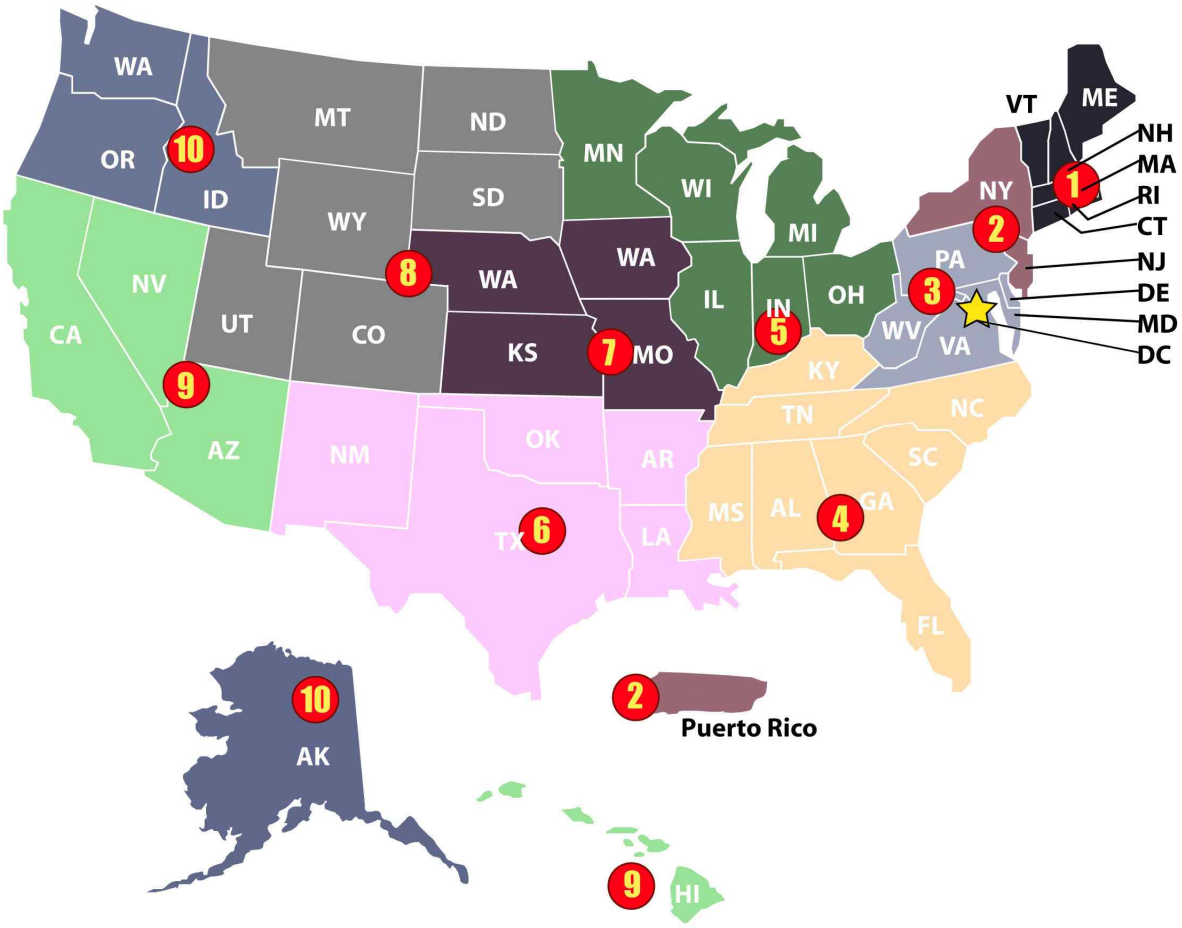
To help reduce greenhouse gas emissions, EPA focused on improvements in energy efficiency. Together EPA and the Department of Energy expanded the nation's preeminent energy efficiency program—EnergyStar. In 2003, consumers purchasing products with the EnergyStar logo saved $9 billion on their energy bills, conserved enough energy to power 20 million homes, and reduced green house gas emissions equivalent to taking 18 million cars off the roads. In addition to adding more consumer product categories, EnergyStar created new rating tools to help schools, hospitals, hotels and other building sectors assess and improve their energy efficiency. On average, buildings that earn the EnergyStar label use about 40 percent less energy than conventional buildings.

EPA launched a variety of initiatives to fight ground-level ozone (sometimes referred to as smog). For example, the Clean School Bus USA program is taking an innovative approach to reducing emissions from diesel school buses. Recognizing that older buses will not meet the more stringent emission standards scheduled to take effect in 2007, EPA is working with public and private organizations to retrofit the nation's entire school bus fleet.

To find flexible, yet protective ways of reducing waste and conserving natural resources, EPA launched the Resource Conservation Challenge. Many industries have responded to this challenge, including electronic manufacturers and retailers. In 2003, these sectors joined EPA in launching the *Plug-In to eCycling* campaign to raise public awareness about the value of reusing and recycling electronics and to provide more reuse and recycling opportunities. In the first year, more than 26 million pounds of used electronic equipment was collected.

To help reduce chemical risks, EPA worked with the chemical industry and environmental groups on an alternative approach for developing new products. The Sustainable Futures Initiative uses advanced computer-based methods to screen products and processes for hazardous components so that risks can be identified early, when changes are easier and less costly. One manufacturer found this pollution prevention approach could reduce research and development costs by up to 50 percent.

EPA's regional offices are working with States and other organizations on innovative solutions to a variety of environmental issues. For example:



Source: SRA International, Inc. October 2003

- **Region 1:** Breathing Better in Boston—In New England, EPA Region 1 is working with the city of Boston to increase participation in a number of voluntary clean air transportation initiatives, such as the *Voluntary Diesel Retrofit* program, *Best Workplaces for Commuters, SmartWay Transport Partnership*, and *Clean School Bus USA*. The goal is to make Boston a national model for community-based voluntary transportation programs that reduce air pollution and traffic congestion.

- **Region 2:** Promoting Green Buildings—From construction to operation to demolition, buildings can pose significant impacts to the environment and the people working in or around them. EPA and the New York City Department of Environmental Protection launched a *Green Building Design Competition* to establish the city as a leader in America's green

building movement. The focus is on showcasing green building principles, developing new ideas, and identifying green building impediments.

- **Region 3:** Addressing Contaminated Sediments—In the Mid-Atlantic region, a watershed approach is being used to clean up and prevent contamination of sediments in the Anacostia River. Working across the watershed, EPA and the Anacostia Watershed Toxic Alliance have undertaken a variety of actions in and around the river to improve environmental quality and to link those improvements to an economic development vision. This robust, stakeholder-driven model offers useful lessons for addressing challenges in other urban watersheds.

- **Region 4:** Focusing on Sustainability—EPA is working with stakeholders in the fast-growing area spanning Charlotte, North Carolina, and Rock Hill, South Carolina, to achieve a healthy environment, vibrant economy, and high quality of life. The *Sustainable Environment for Quality of Life* (SEQL) initiative is evaluating growth taking many factors into account, such as air and water quality, energy use, transportation, and economic development. In addition to helping the region achieve its desired future, SEQL will create a model of integrated environmental management that can be used by other areas facing similar growth challenges.

- **Region 5:** Reducing Agricultural Impacts—To address agricultural water quality concerns, Region 5 established agricultural liaisons to work with U.S. Department of Agriculture and state agencies on a suite of watershed issues, such as pathogens from animal feedlots and protection of drinking water sources. Through training and collaboration, these liaisons have gained insights and information on agricultural practices that will be used to improve water quality management strategies in partnership with other federal, state, and local agencies.

- **Region 6:** Evaluating Passive Air Samplers—EPA is partnering with the states of Texas and New Mexico to test passive samplers for sulfur dioxide, nitrogen dioxide, and toxic air emissions. Passive air monitors are smaller, more portable, and less expensive than conventional equipment, and they do not require electrical power. If these devices gain EPA approval, air monitoring costs could be reduced by up to 50 percent without reducing accuracy, quality control or precision.

- **Region 7:** Using Renewable Energy in Cleanups—In Nebraska, EPA, the United States Corps of Engineers, and the University of Missouri-Rolla are using a wind turbine generator to power a groundwater remediation system at a former military ammunition plant. Designed as a demonstration project, this approach is conserving fossil fuels and protecting air quality while restoring groundwater resources.

- **Region 8:** Addressing Air Toxics at the Community Level—In northeast Denver, EPA is part of a community-based partnership that is addressing hazardous air pollutants in a heavily industrialized area. Working together, the team is identifying the pollution sources, facilitating public participation, and implementing projects that will improve air quality and reduce risks to human health.

- **Region 9:** Controlling Mercury—A voluntary partnership with Nevada gold mining industry gives companies technological and process options for voluntarily reducing mercury air emissions, a toxic pollutant that can have serious neurological effects. Since 2002, this program has reduced mercury air emissions by 40 percent, or more than 8,000 pounds annually. These reductions are the equivalent to the emissions of 33 power plants.

- **Region 10:** Collaborating to Improve Air Quality—In the Pacific Northwest, shared leadership is setting the stage for a dramatic transformation in the way air quality is protected. Through the Northwest Collaborative Air Priorities Project, EPA and other organizations are working together to address a set of regional air priorities over the next five to 10 years. This collaborative approach is broadening support for air quality initiatives, opening communication channels among participants, and enabling smarter use of scarce resources.

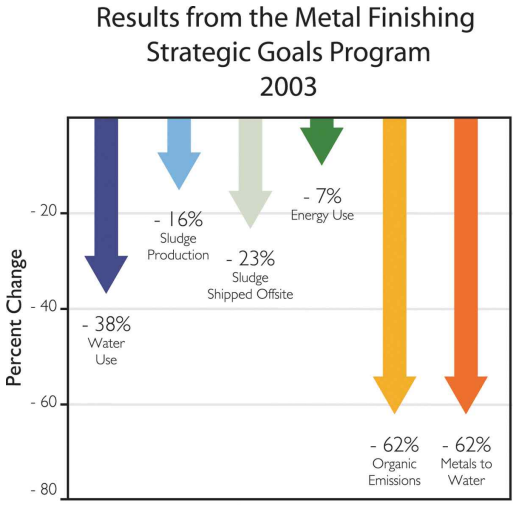
Developing New Tools and Approaches

Facing an increasingly complex set of challenges that aren't always amenable to conventional regulatory solutions, EPA is developing new tools and approaches that create more options for environmental problem-solving.

To spur development of new technology, EPA launched a national environmental technology design competition for college students. Named to recognize the 3 pillars of sustainability—People, Prosperity and the Planet—the "P3" Competition will advance development of better products and promote greater understanding of sustainable concepts in American higher education and learning.

EPA is promoting use of Environmental Management Systems (EMSs) to help businesses, communities, and government agencies integrate environmental management into everyday operations and improve overall performance. In addition to developing EMSs for EPA facilities, the agency is working with industry sectors on EMS models and training, supporting academic research, and providing information and assistance to promote EMS use. EPA is also adding EMSs to certain civil settlements as a way of helping organizations guard against recurring violations.

To improve environmental performance across a large number of businesses, EPA established partnerships with 12 sectors that collectively represent more than 700,000 establishments. These partnerships focus on developing EMSs tailored to each sector's operations, addressing regulatory issues that can hinder environmental improvements, and developing performance measures for tracking progress. The benefits of a sector-based approach can be seen in the metal finishing industry. From 1998 to 2003, participants in that sector's environmental stewardship initiative reduced emissions of organic air pollutants and toxic discharges by 60 percent.



Percentage reductions by participating facilities from 1992 baseline; reductions normalized by $ of sales using most current available data.

Increasingly, EPA is using incentives to motivate organizations to exceed environmental requirements. Public recognition, for example, can be used to build market share, improve community relations, and—as members of the National Environmental Performance Track program have seen—to increase investor confidence. Recently several investment advisory firms have begun using membership in this elite program, which recognizes America's top performers, as a criterion in their ratings. Performance Track members also reap valuable regulatory incentives, such as less frequent inspections and reduced reporting.

Strengthening Our Partnership with States and Tribes

As the primary implementors of environmental programs, states are in excellent position to gauge how well programs are working and how they might be improved. As such, EPA is supporting state-led innovation in a number of ways.

Recognizing the tight budget constraints facing many States, EPA created a State Innovation Grant program. In 2002, EPA 7 States received a total of $750,000 to explore innovative approaches to environmental permitting—from online systems that simplify the permit application process to alternatives that replace conventional permits with more comprehensive environmental management agreements. Based on the strong state response, in 2004, EPA plans to award approximately $1.6 million to support additional permitting innovations.

In addition to exploring innovative approaches under the *Joint EPA/State Agreement to Pursue Regulatory Innovation*, EPA and States developed a joint innovation work plan to address several priorities, including reducing risks from toxic pollutants at the community level and expediting development of pollution "budgets" that are required for impaired waters.

As new approaches evolve, EPA and States have worked together to replicate success. For example, based on results in Massachusetts, 9 States are now adopting an alternative approach to permitting small businesses. Rather than issuing permits to each business, Massachusetts uses self-certification procedures, compliance assistance and performance measures to track and improve results in sectors that have often not received significant regulatory attention in the past. This approach is proving effective—compliance with a discharge limit for one sector jumped from 60 percent to 98 percent in the first year.

Culture and Organizational Systems

Under the leadership of EPA's Innovation Action Council, EPA has focused on creating a culture that enables and rewards environmental problem-solving.

To bring the full value of managerial talent to bear on environmental challenges, EPA rotated nearly a quarter of its senior managers into new positions. Managers from voluntary programs were moved into regulatory positions and vice versa. In some cases, managers were switched to entirely new media. As envisioned, these exchanges are resulting in a cross-fertilization of ideas that can spur fresh thinking and innovation in environmental programs.

Recognizing that new ideas can fuel the creative process, several EPA programs established information sharing networks. For example, EPA's regional air directors established a Center of Excellence for Air Innovations/Futures to promote information sharing and collaboration across the ten regional offices. And the national enforcement and compliance assurance program created a "Change Board" that enables staff to raise new ideas to management.

Several organizations have begun setting aside funds to provide seed money for new ideas. Region 9, for example, is using funds from the national waste program to explore how television programming can be used to educate consumers about environmentally preferable products.

EPA is creating special awards to recognize creativity and innovation by staff. For example, Region 10 selected a new state of the art modeling tool as its "Innovation of the Year." Designed to help users assess the environmental impacts of planned and accidental forestry burns, this tool is now being expanded for use in other parts of the country and for addressing other environmental issues.

The highlights featured in this summary show how EPA is harnessing its creativity and expertise to better meet today's environmental challenges. Many of the innovations offer models that can be applied to improve results in other places and on a much larger scale. Therein lies the real power of innovation—taking ideas that show promise, testing their value, and then applying proven concepts to increase the newfound benefits many times over. EPA is embracing this process to improve results and drive progress toward a stronger, more cost effective environmental protection system for the country.